APPLICATION FOR PATENT

TITLE: CART FOR OPERATING LAWN EQUIPMENT

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BACKGROUND AND SUMMARY OF THE INVENTION:

[001] The present invention is directed to a cart designed to carry and operate lawn equipment, and in particular, motorized lawn trimmers (e.g. WEEDEATERS). The present invention is particularly useful for carrying and operating fuel-powered motorized flexible line vegetation trimmers (commonly known in the art as "weed-eaters"); however, the cart of the present invention may also be used to operate electrically operated flexible line vegetation trimmers as well as other types of lawn equipment, especially lawn equipment that is relatively heavy to carry during operation. The present invention allows the operator to carry and maneuver the lawn equipment with greater ease, since most of the weight of the equipment is carried by the cart as opposed to the operator. The operator merely has to push or pull the cart along the ground.

[002] In certain aspects of the present invention, the inventive cart has an elongated frame comprising a proximal end configured for handling by an operator. The frame further comprises a debris guard secured to the distal end of the frame, the frame being configured to carry the trimmer during operation. The cart further includes a wheel assembly secured to the frame between the handle and debris guard. The debris guard, in certain aspects, comprises an upper shield portion and a lower shield portion. The lower shield portion may be secured to the distal end of the frame and the upper shield portion may be removably or hingably secured to the lower shield portion. In addition, the upper shield portion includes an opening through which a portion of the trimmer's shaft may be enclosed, such that when the trimmer is mounted onto the cart, the shaft is secured between the upper and lower shields, and the cutting assembly of the trimmer is oriented forward of the cart. Thus, when the trimmer is mounted onto the cart and operated therefrom, the guard substantially prevents debris generated by the trimmer from blowing onto the person operating the trimmer.

[003] In other aspects of the instant invention the cart includes a substantially U-shaped mounting device secured to the frame and configured to maintain the fuel tank of the lawn trimmer within the mounting device.

[004] In still other aspects of the present invention, the cart includes a throttle control assembly secured to the frame, the throttle control assembly comprising an actuation device, a lever assembly, and a cable having one end secured to the actuation device and an opposite end secured to the lever assembly. Here, the lever assembly is oriented upon the frame such that when the trimmer is mounted onto the frame, at least a portion of the lever assembly is positioned near the trimmer's throttle trigger such that upon actuation of cart's throttle control assembly, the lever assembly is moved to activate the throttle trigger. Similarly, when the actuation device is released, the lever is moved away from contact with the throttle trigger.

BRIEF DESCRIPTION OF THE FIGURES:

[005] Fig. 1 is side view of the inventive cart carrying a lawn trimmer (in phantom), with certain features of the cart reproduced in a partial exploded view.

[006] Figs. 2 and 3 are perspective views of the present invention showing the lawn trimmer (in phantom) next to the cart.

[007] Fig. 4 is a side view of a second embodiment of the inventive cart carrying a lawn trimmer (in phantom), with certain features of the cart reproduced in a partial exploded view.

DESCRIPTION OF THE EMBODIMENTS:

[008] Referring now to the figures, the present invention is directed to a cart, generally denoted at **10**, suitable for carrying and operating a motorized lawn trimmer, commonly known as "weedeater" in the industry (illustrated in phantom and denoted generally at **100**). The cart comprises an elongated frame **11** having a proximal end **12** and a distal end **13.** Secured to the frame near the distal end is a debris guard **20.** In certain aspects of the invention, the debris guard comprises two portions, namely an upper shield portion **21** and a lower shield portion **22**. The upper shield portion may be removably carried within a bracket assembly **30** secured to the distal end of the frame and configured to

carry the lower edge of the upper portion therein. As shown in the figures, the upper shield portion of the debris guard may have one or more openings **23** through which the trimmer's shaft **101** may be engaged. As shown in Fig. 1, the shaft **101** may be engaged within a clamp **31** secured to the bracket assembly **30** of the cart, for example. Thus, prior to placing the trimmer onto the cart, the upper shield portion **21** of the debris guard is removed and then secured into the bracket assembly **30**, thereby engaging the trimmer shaft **101** therebetween.

[009] During operation of the lawn trimmer **100**, the upper shield portion, which is positioned vertically above the frame, prevents grass and other lawn debris generated by the trimmer from flying rearward and striking the operator of the equipment, in particular the operator's upper torso and face. Preferably, the upper shield portion is formed in part of a transparent plastic or glass material, thereby allowing the operator to see the operation of the trimmer (i.e. the cutting head **102**) more clearly; however, if desired, the upper shield portion may be opaque. Secured beneath the upper shield portion is a lower shield portion **22** that further functions to prevent lawn debris from striking the operator, in particular the operator's legs and feet. As shown in the figures, the lower shield portion **22** may be permamently secured to the bracket assembly **30** while the upper shield portion **21** may be removably secured to the bracket assembly. It will be appreciated by those of ordinary skill in the art, however, that the debris guard may be configured such that the lower shield portion is removably secured to the frame. In addition, the upper and lower shield portions could be one contiguous sheet (with or without the central bracket assembly **30** as shown), with the upper shield portion having a separate means for allowing insertion of the cutting end **102** of the trimmer therethrough. The upper shield portion could also be hingably secured to the lower shield portion at one end, thereby enabling the upper shield portion to swing open to allow placement of the lawn trimmer therebetween. Alternatively, the upper shield portion could be partially removeable, such that the lawn trimmer could be inserted through the gap existing between the upper and lower shield portions. These and other variations to the debris guard may be employed without departing from the spirit of the invention.

[010] Secured to the frame are a set of wheels, preferably a fixed pair of larger wheels **40** and a smaller, rotatable wheel **41** oriented forward of the pair of wheels **40**. The

larger wheels **40** are secured to one another by an axle **42,** which in turn, is secured to a bracket **43**. The bracket **43** is secured to the frame of the cart as shown. The smaller wheel **41** of the cart aids in maneuvering the cart right and left during operation of the lawn equipment carried thereon. In some aspects of the invention, the smaller wheel **41** may be a secured to a post **44** that in turn is engaged within a tube **50** extending from the frame to thereby allow for height adjustment of the wheel **41** therein. While the present invention requires some type of wheel or roller assembly for purposes of moving the cart, it will be readily appreciated by those of ordinary skill in the art that the number, configuration, and size of the wheel assembly is not critical to the operation of the cart.

[011] The lawn equipment **100** illustrated in the figures is a conventional gasoline-powered lawn trimmer, comprising in part a central handle **106** as well as a proximal handle **105** which may be grasped by the operator for ease of operation. The lawn equipment may also comprise a combination motor/fuel tank assembly **103**. As described herein and referenced in the claims of the invention, "motor/fuel tank assembly" means a combination motor/fuel tank as illustrated herein as well as just the motor alone (i.e. separated somewhat from the fuel tank in equipment having a fuel tank) or just the fuel tank alone (i.e. separated somewhat from the motor). "Motor/fuel tank assembly" also includes just the motor alone in lawn equipment which do not employ a fuel tank, namely electrically-operated equipment.

[012] The cart **10** of the present invention is particularly useful in operating and carrying these gasoline-operated lawn trimmers, as illustrated herein and described above, since such trimmers can be particularly heavy and cumbersome to operate due in part to those trimmers having a motor/fuel tank assembly **103**, similar to that illustrated herein, which is often located near the proximal end of the trimmer. The motor/fuel tank assembly **103** of the trimmer **100** illustrated herein is located at the proximal-most end of the trimmer. To help stabilize and maintain the trimmer within the cart, the cart may further include a substantially U-shaped mounting device **60** secured to the frame of the trimmer. The mounting device **60** is sufficiently sized to cradle the motor/fuel tank assembly **103** therein (or the motor alone or the fuel tank alone in other lawn equipment designs, as discussed above). To add further support, the mounting device may include a small bracket **61** for maintaining the proximal handle **105** of the trimmer (for those

models having such a handle). It will be appreciated by the skilled artisan, however, that the inventive cart may be designed such that the mounting device is positioned further forward or rearward along the frame to accommodate other types of lawn equipment, in particular lawn equipment having a motor and/or fuel tank secured elsewhere upon the equipment.

[013] For purposes of supporting the cart in a somewhat upright or angled position relative to the ground when the cart is stationary, a support leg **70** may be employed, as better shown in Fig. 1. The support leg **70** may be housed in a tube portion **71** extending from the frame, as shown in Fig. 1. The height of the support leg may be adjusted by locking one end of the leg within the tube via a locking screw **72**, for example. It will be recognized by the skilled artisan, however, that other conventional means may be employed for adjusting the height of the support leg.

[014] Certain aspects of the present invention may also include a novel throttle control assembly secured to the frame. The throttle assembly comprises an actuation device **80**, a lever assembly **81**, and a cable **82** having one end secured to the actuation device and an opposite end secured to the lever assembly. The lever assembly, as shown in the figures, is oriented on the frame such that when the trimmer is mounted onto the frame, at least a portion of the lever assembly is positioned near the trimmer's throttle trigger **104** such that upon actuation of the throttle control assembly of the cart, the lever assembly is moved to contact, and thereby activate, the trigger. Similarly, when the actuation device is released, the lever is moved away from contact with the throttle trigger, thereby allowing the motor to idle.

[015] The figures illustrate a preferable design of the throttle assembly, wherein the proximal end of the frame comprises a substantially rectangular frame portion. The frame portion further includes an upper horizontal handle **14** integral with two side bars **15** and a lower bar **16** integral with the same two side bars.

[016] The figures also illustrate a preferred design of the throttle assembly, as described in part above. Here, the actuation device **80** may include a horizontal handle **84** hingably secured to the side bar **83**. The lever assembly **81** is secured to the frame upon or near the lower bar **16**. As illustrated, the lever assembly **81** may also include a fixed hinged end **85** secured to the frame and to said cable **82** and a freely movable end **86** that

contacts and moves the throttle trigger **104** when the handle **84** is depressed against the frame handle (i.e. upper bar **14**). Fig. 3 illustrates the handle **84** in the depressed position (in bold lines) to actuate the throttle trigger **104** (shown in bold lines) of the lawn trimmer. When the handle **84** is released, the freely movable end **86** of the lever assembly is moved away from contact with the throttle trigger **104**, thereby allowing the motor of the lawn equipment to idle. Fig. 3 illustrates the handle **84** (in phantom lines) in the released position to release the trigger throttle **104** (in phantom lines).

[017] Fig. 4 illustrates a second embodiment of the present invention, wherein a fuel exhaust diversion pipe **200** is provided. As shown in Fig. 4, the pipe **200** is secured near the proximal end of the frame, just behind the motor/fuel tank assembly **103**. The pipe **200** may be mounted to the cart via an additional mounting bracket **201** secured to the U-shaped mounting device **60** of the cart. The pipe **200** is preferably positioned upon the cart such that upon operation of the motor, the fuel exhaust emanating from the motor is diverted away from the operator of the cart. A preferable design is illustrated in Fig. 4, wherein the pipe has an elbow shape and is positioned such that the fuel exhaust is diverted downward toward the ground, in the direction of arrow **A**.

[018] The components of the inventive cart may be formed of any number of durable materials known in the art. The figures illustrate a preferred embodiment of the present invention, wherein the cart includes all of the features described above (e.g. debris guard, throttle assembly, U-shaped motor mounting device, support leg, etc.); however, it will be appreciated that the cart may employ less than all of these features or additional features.

[019] While the inventive cart is particularly advantageous for use in operating relatively heavy gasoline powered lawn trimmers, it will be appreciated by the skilled artisan that electrically powered lawn trimmers as well as other types of lawn and garden equipment (gasoline or electrically powered) may be used, including, but not limited to, lawn edgers, blowers, and other "weedeater" designs.